Oxidation – Types

Oxidation Types

Metabolic typing is a central concept in hair analysis interpretation and the science of nutritional balancing. The term *'oxidation types'* originated with Dr. George Watson, PhD, a researcher at UCLA. He wrote a fascinating book entitled, *Nutrition and Your Mind,* and a second book entitled, *Personality Strength and Psychochemical Energy.* Dr. Watson discovered two metabolic types, first by using odor tests and later by using blood tests. He found that the blood pH of fast oxidizers was slightly more acidic than that of slow oxidizers.

He discovered that certain foods and nutrients benefitted each metabolic type. He was able to correct the oxidation rate using diet and supplementary nutrients. This caused dramatic improvements in both his client's physical and emotional symptoms.

Dr. Paul C. Eck refined Dr. Watson's oxidation concepts. An important advance was to relate it to homeostatic states as defined by the stress theory of disease. *Fast oxidation correlates with an alarm stage of stress. Slow oxidation correlates with a resistance or exhaustion stage of stress.* Essentially, fast and slow oxidation are ways that the body responds to stress. The stress may be from within, such as nutrient deficiencies or fatigue. Stress may also arise from a multitude of external sources. Dr. Eck also began to use hair mineral analysis for assessing oxidation types. After considerable experimentation, he settled on two mineral ratios for this determination.

Definitions Of The Oxidation Type And The Oxidation Rate

Fast oxidation is defined as a hair calcium/potassium ratio less than 4.00 and a hair sodium/magnesium ratio greater than 4.17. The lower the calcium/potassium ratio or the higher the sodium/magnesium ratio, the faster the oxidation rate.

Slow oxidation is defined on a hair mineral analysis as a calcium/potassium ratio greater than 4.00 and a sodium/magnesium ratio less than 4.17. The higher the calcium/potassium ratio or the lower the sodium/magnesium ratio, the slower the oxidation rate.

It is important to note that many factors can influence the hair mineral levels and ratios. These include the presence of excessive toxic metals, nutritional deficiencies, infections, illnesses or stress from any source. For this reason, the first few hair analyses may give only a superficial picture of the condition of body chemistry. After several months to more than a year of nutritional balancing, the hair mineral patterns often change dramatically.

Fast Oxidation

Fast oxidation is characterized by excessive activity of the thyroid and adrenal glands. More adrenal activity and thus a higher level of aldosterone raise the hair or soft tissue sodium and potassium levels. This also results in lower tissue levels of calcium and magnesium due to increased solubility of calcium and magnesium. Blood mineral levels do not usually correspond to the levels of these minerals in the hair.

On a hair mineral analysis, the pattern of fast oxidation is one of lowered calcium and magnesium levels, along with elevated levels of sodium and potassium. Fast oxidizers also have significant *sympathetic nervous system tone.* This in part accounts for their increased adrenal and thyroid glandular activity, as sympathetic nervous activity stimulates the activity of these glands.

Slow Oxidation

In slow oxidation, the activity of the adrenal and thyroid glands decreases. The glands themselves and at times the sympathetic nervous system are both basically depleted of nutrients and do not function well. In part for this reason, slow oxidation is related to a *parasympathetic state of body chemistry* with less fight-or-flight activity. In almost all cases, the sympathetic nervous system is exhausted and the person moves into a parasympathetic state by default.

Slow oxidation, especially when the rate is very slow, is an *exhaustion stage of stress,* according to Dr. Selye's stress theory of disease.

Tissue sodium, you will recall, correlates well with the activity of aldosterone, an adrenal hormone. *Thus, on a hair mineral analysis, slow oxidizers have low levels of sodium and potassium. Calcium and magnesium rise in the hair as the tissue sodium level decreases.* This occurs, in part, due to reduced solubility of calcium that results when the tissue sodium level is low.

Mixed Oxidation

Mixed oxidation is said to be present when the calcium/potassium ratio is greater than 4.00 and the sodium/magnesium ratio is greater than 4.17. Alternatively, the calcium/potassium ratio may be less than 4.00 and the sodium/magnesium ratio less than 4.17.

We use the terms *fast-mixed* oxidation when the key ratios tend more toward fast oxidation. When they tend more toward slow oxidation, we call it *slow-mixedoxidation.* Mixed oxidation is a temporary state that will change to fast or slow oxidation when one follows a nutritional balancing program.

Symptoms Of Fast Oxidation

True fast oxidizers tend to be anxious, irritable and aggressive if their oxidation rate is very fast. Their blood sugar and blood pressure tend to be on the high side of normal. They are often warm and sweat easily. They usually have oily skin, and a tendency for frequent or loose bowel movements. They may gain weight in the area of the abdomen due to high levels of cortisol and cortisone.

Most people whose hair analysis indicates fast oxidation, however, are not true fast oxidizers. Instead, they are what we call *tired or temporary fast oxidizers,* or *slow oxidizers under stress.*

Symptoms Of Slow And Mixed Oxidation

Slow oxidizers often suffer from fatigue, sweet cravings and low blood sugar. As their oxidation rate slows further, they often become apathetic and depressed. Their blood pressure and blood sugar may be low unless arteriosclerosis or diabetes have set in. Their skin and hair are often dry and their hair may become brittle or thin. Many experience constipation and other symptoms associated with reduced adrenal and thyroid glandular activity. Slow oxidizers may gain weight on the hips and the legs due to their metabolic imbalances.

Mixed oxidizers often display a mixture of symptoms of both fast and slow oxidation. One may need to wait until the mixed oxidation pattern resolves into slow or fast oxidation to gain a clear picture of underlying metabolic patterns.

Diet For The Oxidation Types

Dr. Watson found that fast oxidizers require more fats and oils in their diet in order to feel their best. They burn their food quickly and their caloric needs are greater. Fats provide more calories and longer-lasting energy. In contrast, sugars burn too fast, provide fewer calories and often further enhance the oxidation rate. For this reason, fast oxidizers should avoid all sugars, including most fruit and all juices. Even complex carbohydrates are recommended only in small amounts.

True fast oxidizers require heavier, fattier foods such as steak and a potato with sour cream. To lose weight, they may do well on an Atkins diet, at least for a limited period of time. We suggest however, that one eat only the highest quality animal fats, olive oil and coconut oil.

Slow oxidizers require more protein and less fat in their diets. Protein with every meal is most important to maintain their blood sugar level and support adequate adrenal and thyroid gland activity. Animal protein is important to eat every day, as the bodies are depleted of many nutrients found in meats. These include zinc, alpha lipoic acid, sulfur-containing amino acids and L-carnitine. Meats also provide other less-known nutrients the slow oxidizer requires.

Protein digestion is weak in slow oxidizers. As a result, many tend toward vegetarian diets. However, this may sometimes slow or prevent their complete healing. Instead, they require digestive enzymes to obtain all the nutrition from their food.

Basic Supplements For Fast And Slow Oxidizers

Dr. Watson and Dr. Eck found that fast oxidizers need more of nutrients such as copper, zinc, choline, inositol, calcium and magnesium. They also do well on more of vitamins A and D. Vitamins B-complex and C are less beneficial and tend make fast oxidation worse in some cases. Slow oxidizers generally need more of the B-complex and vitamins C and E. They usually do not need much copper. They do, however, need zinc and most often calcium and magnesium.

Both types benefit from a digestive aid. We find that they both also need extra chromium, selenium and perhaps even a general mineral supplement.

The Chemistry Of Fast And Slow Oxidation

When one combines the extensive research of Dr. Hans Selye, Dr. George Watson and Dr. Paul C. Eck, one begins to develop a very clear picture of the physiology and biochemistry of fast and slow oxidation.

By identifying these states quickly with a hair mineral analysis, one knows at a glance how a person is responding to stress biochemically. Then one can recommend the correct foods, nutrients, lifestyle changes and detoxification protocol to bring the body to balance and harmony. Balancing body chemistry in this manner results in a significant increase in cellular energy production. This allows healing to occur at a greatly increased rate.

We always seek to move a person from a lower energy and less optimum homeostatic state to a healthier state with higher energy. Slow oxidation, for example, is a lower energy state than fast oxidation. A balanced state, neither too fast nor too slow, is considered optimum. It is a condition in which the metabolism can speed up when needed, and yet at other times remain peacefully at rest.